

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
17 November 2005 (17.11.2005)

PCT

(10) International Publication Number
WO 2005/108899 A1

(51) International Patent Classification⁷: **F28F 9/22**, B60H
1/32, F25B 39/02, F28D 1/053, F28F 9/02

(74) Agents: **HIBI, Norihiko** et al.; c/o KISHIMOTO &
CO., 3rd Floor, Inaba Building, 13-18, Nishishinsaibashi
1-chome, Chuo-ku, Osaka-shi, Osaka 5420086 (JP).

(21) International Application Number:
PCT/JP2005/009007

(22) International Filing Date: 11 May 2005 (11.05.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2004-140527 11 May 2004 (11.05.2004) JP
60/570,823 14 May 2004 (14.05.2004) US
2004-332637 17 November 2004 (17.11.2004) JP
60/637,438 21 December 2004 (21.12.2004) US

(71) Applicant (for all designated States except US): **SHOWA
DENKO K.K.** [JP/JP]; 13-9, Shiba Daimon 1-chome, Mi-
nato-ku, Tokyo, 1058518 (JP).

(72) Inventor; and

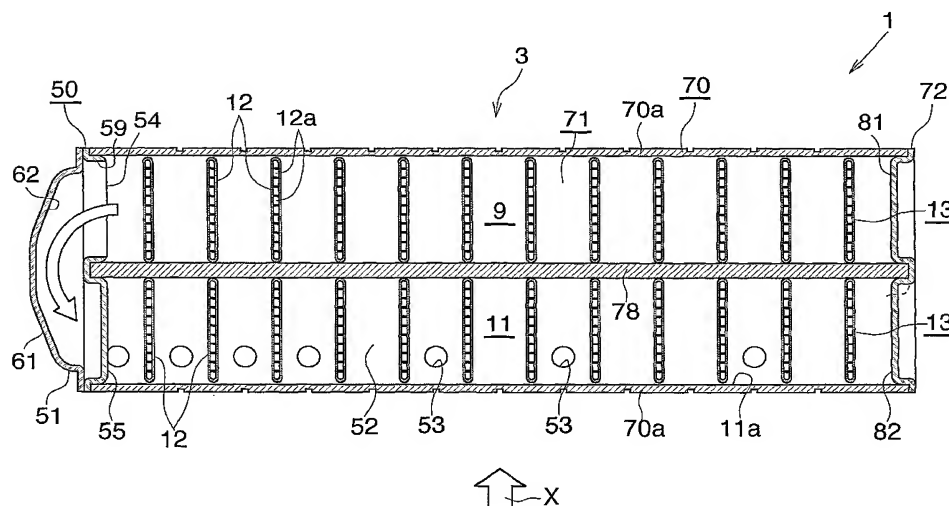
(75) Inventor/Applicant (for US only): **HIGASHIYAMA,
Naohisa** [JP/JP]; c/o SHOWA DENKO K.K., OYAMA
REGIONAL OFFICE, 480, Inuzuka 1-chome, Oyama-shi,
Tochigi, 3238678 (JP).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG,
KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: HEAT EXCHANGERS



(57) Abstract: An evaporator 1 comprises a heat exchange core 4 having heat exchange tubes 12 in groups 13, a refrigerant inlet header 5 and a refrigerant outlet header 6 which are arranged toward one end of each of the heat exchange tubes 12, and a refrigerant inflow header 9 and a refrigerant outflow header 11 which are arranged toward the other end of each heat exchange tube 12. The outflow header 11 has its interior divided by a flow dividing control wall 52 into two spaces 11a, 11b arranged one above the other. The inflow header 9 and the lower space 11b of the outflow header 11 are held in communication each at one end thereof. The control wall 52 has a plurality of refrigerant passing holes 53 arranged at a spacing longitudinally thereof.

WO 2005/108899 A1



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.